**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Currently amended) A tubesheet support arrangement according to claim ~~4~~ 15 and further comprising a ring of insulation material disposed radially inwardly of the intermediary support element.

6. (Original) A tubesheet support arrangement according to claim 5, wherein the intermediary support element includes an inner diameter surface and the first vessel interface structure includes a support ring having an inner diameter surface at a lesser radial spacing from the vessel axis than the inner diameter surface of the intermediary support element and the opposed axial end of the intermediary support element is sealingly connected to the support ring.

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Currently amended) A tubesheet support arrangement according to claim ~~9~~ 17, wherein the temperature of the intermediary support element at the sealing contact at which the intermediary support element is in contact with the first vessel interface structure is nearly equal to the average temperature of the first vessel interface structure.

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (New) A tubesheet support arrangement for the support of a tubesheet within a vessel, the vessel having a vessel axis and having a first vessel interface structure and a second vessel interface structure axially spaced from one another such that an axially extending placement gap is formed therebetween and the tubesheet having a plurality of apertures arrayed relative to a radial plane through the tubesheet each for receiving therein one of a plurality of tubes such that the tubesheet maintains the tubes at fixed radial spacings from one another with the tubes extending from the tubesheet on a tube projecting side of the radial plane and the tubesheet being disposed within the vessel such that the radial plane through the tubesheet is axially co-incident with the axially extending placement gap and the first vessel interface structure is disposed on the tube projecting side of the radial plane of the tubesheet, the tubesheet support arrangement comprising:

an intermediate support element having one axial end sealingly connected to the tubesheet and an opposed axial end sealingly connected to the first vessel interface structure which is disposed on the tube projecting side of the radial plane of the tubesheet, the intermediary support element supporting at least the principal portion of the weight of the tubesheet and the tubes on the first vessel interface structure;

a sealing connection between the tubesheet and the second vessel interface structure in the form of a fully circumferentially extending topside boundary element having one axial end sealingly connected to the tubesheet and an opposed axial end sealingly connected to the second vessel interface structure;

an outer vessel wall component extending fully circumferentially and having one axial end sealingly connected to the first vessel interface structure; and

wherein the inner radius of the outer vessel wall component is larger than the outer radius of the intermediary support element and the outer radius of the topside boundary element such that a circumferentially extending annulus is formed between the outer vessel wall component, on the one hand, and the intermediary support element and the topside boundary element, on the other hand, and wherein insulation material is disposed in the circumferentially extending annulus.

16. (New) A tubesheet support arrangement for the support of a tubesheet within a vessel, the vessel having a vessel axis and having a first vessel interface structure and a second vessel interface structure axially spaced from one another such that an axially extending placement gap is formed therebetween and the tubesheet having a plurality of apertures arrayed relative to a radial plane through the tubesheet each for receiving therein one of a plurality of tubes such that the tubesheet maintains the tubes at fixed radial spacings from one another with the tubes extending from the tubesheet on a tube projecting side of the radial plane and the tubesheet being disposed within the vessel such that the radial plane through the tubesheet is axially co-incident with the axially extending placement gap and the first vessel interface structure is disposed on the tube projecting side of the radial plane of the tubesheet, the tubesheet support arrangement comprising:

an intermediary support element having one axial end sealingly connected to the tubesheet and an opposed axial end sealingly connected to the first vessel interface structure which is disposed on the tube projecting side of the radial plane of the tubesheet, the intermediary support element supporting at least the principal portion of the weight of the tubesheet and the tubes on the first vessel interface structure;

an outer vessel wall component extending fully circumferentially and having one axial end sealingly connected to the first vessel interface structure; and

wherein the inner radius of the outer vessel wall component is larger than the outer radius of the intermediary support element and the outer radius of the topside boundary element such that a circumferentially extending annulus is formed between the outer vessel wall component, and the intermediary support element and the topside boundary element, on the other hand, and wherein insulation material is disposed in the circumferentially extending annulus.

17. (New) A tubesheet support arrangement for the support of a tubesheet within a vessel, the vessel having a vessel axis and having a first vessel interface structure and a second vessel interface structure axially spaced from one another such that an axially extending placement gap is formed therebetween and the tubesheet having a plurality of apertures arrayed relative to a radial plane through the tubesheet each for receiving therein one of a plurality of tubes such that the

tubesheet maintains the tubes at fixed radial spacings from one another with the tubes extending from the tubesheet on a tube projecting side of the radial plane and the tubesheet being disposed within the vessel such that the radial plane through the tubesheet is axially co-incident with the axially extending placement gap and the first vessel interface structure is disposed on the tube projecting side of the radial plane of the tubesheet, the tubesheet support arrangement comprising:

an intermediary support element having one axial end sealingly connected to the tubesheet and an opposed axial end sealingly connected to the first vessel interface structure which is disposed on the tube projecting side of the radial plane of the tubesheet, the intermediary support element supporting at least the principal portion of the weight of the tubesheet and the tubes on the first vessel interface structure; and

wherein the intermediary support element has a decreasing temperature gradient from the sealing contact at which the intermediary support element is in contact with the tubesheet toward the sealing contact at which the intermediary support element is in contact with the first vessel interface structure with the temperature of the intermediary support element at the sealing contact at which the intermediary support element is in contact with the first vessel interface structure being approximately equal to the average temperature of the first vessel interface structure.

18. (New) A tubesheet support arrangement for the support of a tubesheet within a vessel, the vessel having a vessel axis and having a first vessel interface structure and a second vessel interface structure axially spaced from one another such that an axially extending placement gap is formed therebetween and the tubesheet having a plurality of apertures arrayed relative to a radial plane through the tubesheet each for receiving therein one of a plurality of tubes such that the tubesheet maintains the tubes at fixed radial spacings from one another with the tubes extending from the tubesheet on a tube projecting side of the radial plane and the tubesheet being disposed within the vessel such that the radial plane through the tubesheet is axially co-incident with the axially extending placement gap and the first vessel interface structure is disposed on the tube projecting side of the radial plane of the tubesheet, the tubesheet support arrangement comprising:

an intermediary support element having one axial end sealingly connected to the tubesheet and an opposed axial end sealingly connected to the first vessel interface structure which is disposed on the tube projecting side of the radial plane of the tubesheet, the intermediary support element supporting at least the principal portion of the weight of the tubesheet and the tubes on the first vessel interface structure;

a sealing connection between the tubesheet and the second vessel interface structure in the form of a fully circumferentially extending topside boundary element having one axial end sealingly connected to the tubesheet and an opposed axial end sealingly connected to the second vessel interface structure;

an outer vessel wall component extending fully circumferentially and having one axial end sealingly connected to the first vessel interface structure;

wherein the inner radius of the outer vessel wall component is larger than the outer radius of the intermediary support element and the outer radius of the topside boundary element such that a circumferentially extending annulus is formed between the outer vessel wall component, on the one hand, and the intermediary support element and the topside boundary element, on the other hand, and insulation material being disposed in the circumferentially extending annulus;

a ring of insulation being disposed radially inwardly of the intermediary support element;

wherein the intermediary support element includes an inner diameter surface and the first vessel interface structure includes a support ring having an inner diameter surface at a lesser radial spacing from the vessel axis than the inner diameter surface of the intermediary support element and the opposed axial end of the intermediary support element is sealingly connected to the support ring; and

wherein the temperature of the intermediary support element at the sealing contact at which the intermediary support element is in contact with the first vessel interface structure is nearly equal to the average temperature of the support ring.

19. (New) A tubesheet support arrangement for the support of a tubesheet within a vessel, the vessel having a vessel axis and having a first vessel interface structure and a second vessel interface structure axially spaced from one another such that an axially extending placement gap is formed therebetween and the tubesheet having a plurality of apertures arrayed relative to a radial plane through the tubesheet each for receiving therein one of a plurality of tubes such that the tubesheet maintains the tubes at fixed radial spacings from one another with the tubes extending from the tubesheet on a tube projecting side of the radial plane and the tubesheet being disposed within the vessel such that the radial plane through the tubesheet is axially co-incident with the axially extending placement gap and the first vessel interface structure is disposed on the tube projecting side of the radial plane of the tubesheet, the tubesheet support arrangement comprising:

an intermediary support element having one axial end sealingly connected to the tubesheet and an opposed axial end sealingly connected to the first vessel interface structure which is disposed on the tube projecting side of the radial plane of the tubesheet, the intermediary support element supporting at least the principal portion of the weight of the tubesheet and the tubes on the first vessel interface structure;

a sealing connection between the tubesheet and the second vessel interface structure in the form of a fully circumferentially extending topside boundary element having one axial end sealingly connected to the tubesheet and an opposed axial end sealingly connected to the second vessel interface structure;

an outer vessel wall component extending fully circumferentially and having one axial end sealingly connected to the first vessel interface structure and an opposed axial end sealingly connected to the second vessel interface structure;

wherein the inner radius of the outer vessel wall component is larger than the outer radius of the intermediary support element and the outer radius of the topside boundary element such that a circumferentially extending annulus is formed between the outer vessel wall component, on the one hand, and the intermediary support element and the topside boundary element, on the other hand;

insulation material disposed in the circumferentially extending annulus; and

wherein the intermediary support element has a decreasing temperature gradient from the sealing contact at which the intermediary support element is in contact with the tubesheet toward the sealing contact at which the intermediary support element is in contact with the first vessel interface structure with the temperature of the intermediary support element at the sealing contact at which the intermediary support element is in contact with the first vessel interface structure being approximately equal to the average temperature of the first vessel interface structure.